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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,428	03/20/2006	Brian Philip Allen	62130-0035	8434

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PROSKAUER ROSE LLP  
1001 PENNSYLVANIA AVE, N.W.,  
SUITE 400 SOUTH  
WASHINGTON, DC 20004

EXAMINER
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BASTIANELLI, JOHN

ART UNIT	PAPER NUMBER
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3753

MAIL DATE	DELIVERY MODE
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11/24/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/567,428	<b>Applicant(s)</b> ALLEN ET AL.	
	<b>Examiner</b> John Bastianelli	<b>Art Unit</b> 3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-60 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-60 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/8/06</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 11, 17, 33 and 49 are objected to because of the following informalities:  
Claims 11, 17 and 33 have the term "the body" should be referred to as "the first body" in order to differentiate it from the other "second" body. In claim 49, the term "30" appears to be there mistakenly. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 16-17 and 44-48 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The second body being a bubble that is generated by alternating current is not understood how this is possible and how the bubble is moved by the electrodes.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 58-59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language.

This claim is an omnibus type claim.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-14, 16-42, and 44-60, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Marr et al. WO 02/091028 A2.

Marr discloses a microfluidic valve (Figs. 1-9) having a first body (outside) for containing fluid having a fluid inlet and a fluid outlet and a plurality of electrode, and arranged to contain, in use, a second body (colloidal particle) held within fluid contained in the first body, the second body being moveable toward or away from one of the fluid inlet or fluid outlet, the movement of the second body caused by a phase difference in the electric field generated by the electrodes, such that fluid flow into or out of the first body is controlled. The plurality of electrodes is an array, the plurality of electrodes are arranged on a side of the first body, the plurality of electrodes are arranged on opposite sides of the first body, the plurality of electrodes are arranged on adjacent sides of the first body. The phase difference is inherently produced by an electric field gradient or non-uniform electric field by applying alternating current to the electrodes that is a lag or

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advance of 90 degrees. The phase difference causes the second body to move toward or away from the inlet or outlet, the fluid flow is prevented, when fluid flow is prevented the valve is switched off, when the valve is moved away from the inlet or outlet, the valve is on. The second body is made of dielectric material. The second body is seen as a bubble (since it is round without any explanation disclosed) with what is seen as a bubble generation chamber. The first body defines a channel that is a pipe. The second body is electrically conductive movable by dielectrophoresis, electrophoresis, or electro-osmosis. The flow is seen as laminar. The first body has a plurality of inlets and outlets and fluid flow is controllable by the second body through the inlet and outlet. The fluid is a liquid or a gas (definition of fluid is liquid or gas). The method is seen as practiced by the apparatus. The valve is in a microfluidic chip or switch or diagnostic device.

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 15 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marr et al. WO 02/091028 A2 in view of Biegelsen et al. US 5,971,355.

Marr lacks a specific mention of the dielectric material used. Biegelsen discloses PTFE as a dielectric material. It would have been obvious to one having ordinary skill in the

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art at the time the invention was made to use PTFE as disclosed by Biegelsen as the dielectric second body of Marr in order to provide toughness.

10. Claims 6-9, 16-17, 35 and 44-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marr et al. WO 02/091028 A2 in view of Imai US 6,315,395.

Marr lacks the second body being a bubble generated by a bubble generation chamber. Imai discloses a bubble made by a bubble generator and moved by alternating current applied to electrodes. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the bubbles moved by alternating current applied to electrodes of Imai as the second body of Marr and bubble generation chamber as disclosed by Imai connected to the first body of Imai in order to easily produce conductive bubbles by alternating current that would be easier to produce them and the second body would be lighter and more easily moved by the electrodes.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ben-Shalom, Sturman, Wing, Horchos, Bouvet, Reinicke, Hoppe, O'Connor, Hata and Jeon disclose first and second bodies moved by electrodes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Bastianelli whose telephone number is (571) 272-4921. The examiner can normally be reached on M-Th (8-6:30).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Huson can be reached on (571) 272-4887. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John Bastianelli  
Primary Examiner  
Art Unit 3753

/John Bastianelli/  
Primary Examiner, Art Unit 3753